WM-51

AR-17

SERVICE MANUAL

AEP Model
UK Model
E Model

PHOTO : white type

REVISED

Discard WM-51
SERVICE MANUAL
(No. 9-952-634-11)
previously issued.

- **There are five color types in this model, that is White, Pink, Green, Red and Gray.**

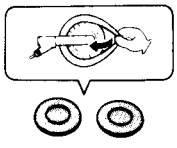
SPECIFICATIONS

Tape track
4 track 2 channel stereo
Fast winding time
Approx. 3 min. with Sony C-60 cassette
Frequency response
40–15,000 Hz (with the TAPE selector set to CrO_2/METAL)
40–15,000 Hz (with the TAPE selector set to NORM)
Power output
4 mW + 4 mW at DC operation (at 10% harmonic distortion)
Power requirements
1.5 V DC
R6 (size AA) battery
Rechargeable battery
DC IN 1.5 V jack accepts:
Sony AC-D1M AC power adaptor (optional)
for use on 220 V AC, 50 Hz
Sony EBP-10 battery case (optional)
for use with two R6 (size AA) batteries
Sony DCC-70 car battery cord (optional)
for use with 12 V car battery
Battery life (hours)

Battery	Tape playback
Sony SUM-3(NS)	Approx. 2.5
Sony alkaline AM3	Approx. 7.5
Sony rechargeable battery NC-5WM (fully charged)	Approx. 2.5

For maximum performance we recommend the use of alkaline battery.

Dimensions
Approx. 90.5 × 108 × 23 mm (w/h/d)
($3\frac{5}{8} \times 4\frac{3}{8} \times \frac{29}{32}$ inches)
not incl. projecting parts and controls
Approx. 91.5 × 108 × 31.5 mm (w/h/d)
($3\frac{5}{8} \times 4\frac{3}{8} \times 1\frac{1}{4}$ inches)
incl. projecting parts and controls
Weight
Approx. 220 g (7.8 oz) incl. battery
not incl. other accessories
Accessories supplied
Carrying pouch (1)
Ear adaptor (2)



Rubber sheet (2)

Tape Transport Mechanism Type	MT-WM51-01

Only for AEP and UK model
Rechargeable battery (1)
Battery charger (1)
Only for E model
Sony alkaline battery AM3 (1)

Note: If an AC power adaptor or a car battery cord not manufactured by Sony is used, a fuse must be installed in the AC power adaptor or the car battery cord and the polarity of the plug must be as illustrated.

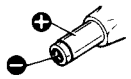


TABLE OF CONTENTS

Section	Title	Page
	Specifications	1
	Servicing Note	2
SECTION 1	GENERAL	4
SECTION 2	DISASSEMBLY	7
SECTION 3	ADJUSTMENTS	9
SECTION 4	DIAGRAMS	
4-1.	Mounting Diagram – Former type –	12
4-2.	Schematic Diagram	17
4-3.	Mounting Diagram – New type –	19
SECTION 5	EXPLODED VIEWS AND PARTS LIST	23
SECTION 6	ELECTRICAL PARTS LIST	26

STEREO CASSETTE PLAYER

SONY®

TC

MICROFILM

Servicing Note

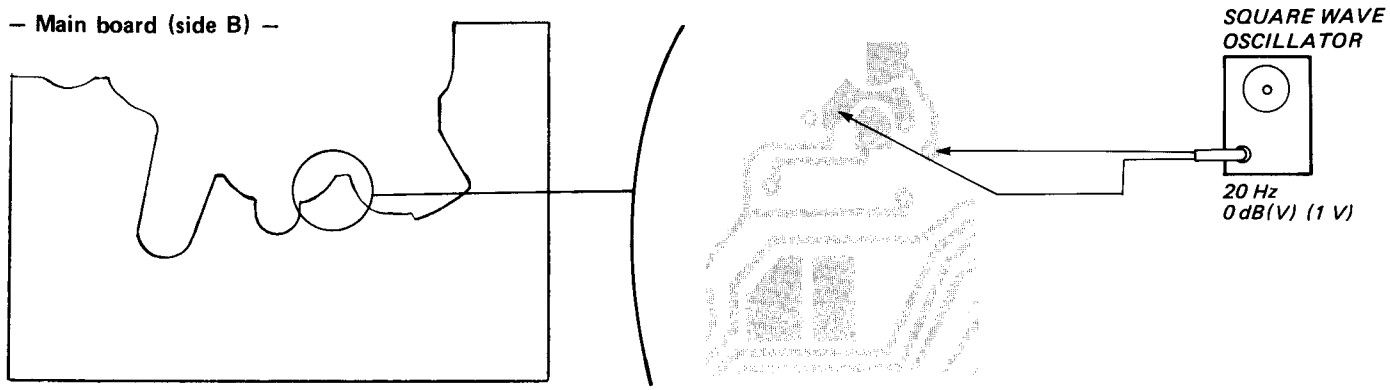
This set detects rotation of reel table by PH701 (Photo interrupter).

It cannot be detected when the main board is removed, because PH701 is mounted on the main board is removed.

Therefore, the auto off circuit and tape end detection will misoperate.

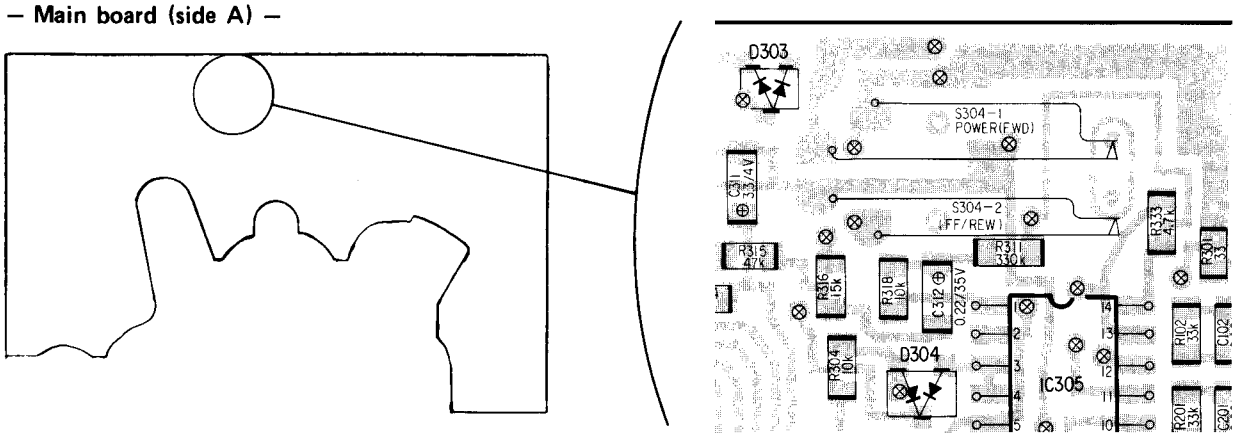
Operation check can be done by the method shown below even when the main board is removed.

– Main board (side B) –



- For PLAY, press the ▶ button and turn only the POWER switch ON.
- For FF and REW, press ▶▶ or ◀◀ button and turn both POWER switch and FF/REW switch ON.

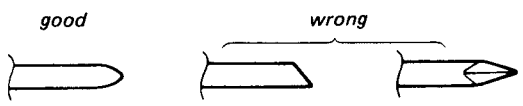
– Main board (side A) –



Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at 270° ± 10°C during repairing.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

Tip of soldering iron



Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

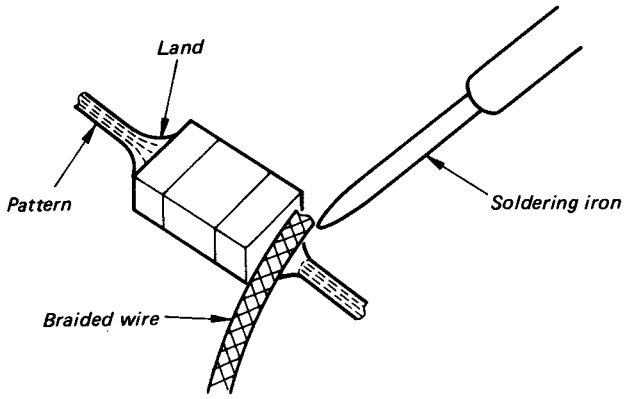
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ **Removing chip components**

(1) **Removing solder at electrode**

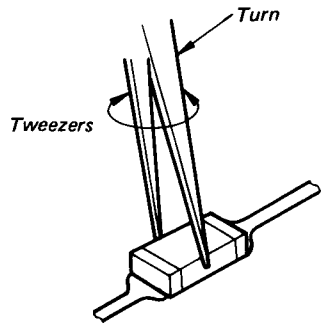
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) **Disconnecting chip components**

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.

Never re-use a disconnected chip component.



(3) **Smoothing the soldered surface**

After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ **Connecting chip components**

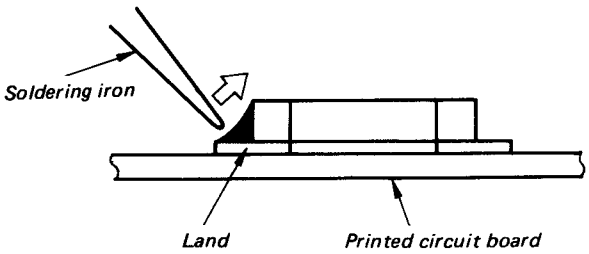
The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

(1) **Applying solder to land on one side**

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.

(2) **Speedy soldering**

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.

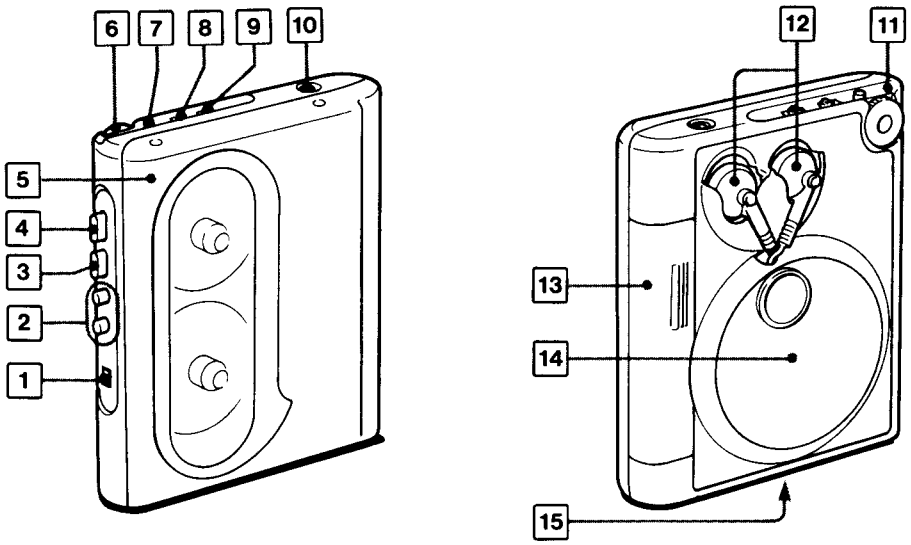


(3) **Speedy soldering of electrode on the other side**

Solder the electrode on the other side in the same way as in (2) above.

SECTION 1
GENERAL

1-1. PARTS IDENTIFICATION



1 LOCK switch
Slide in the arrow direction to avoid accidental operation.

2 ▲▲/▼▼ (fast winding) buttons

3 ■ STOP/EJECT button

4 ▲ PLAY (playback) button

5 Cassette holder

6 VOL (volume) control

7 ◀‖▶ DIR (tape transport direction change) button

8 MODE (tape transport mode) selector

9 TAPE selector

10 ∩ (headphones) jack (stereo minijack)

11 BATT (battery) indicator

12 Stereo earphones

13 Battery compartment

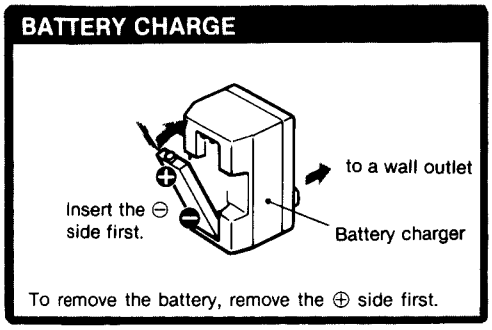
14 Cord reel

15 DC IN 1.5V (external power input) jack (bottom)

1-2. TO USE WITH RECHARGEABLE BATTERY

Be sure to charge the rechargeable battery before using.

BATTERY CHARGE



To remove the battery, remove the ⊕ side first.

Notes
- Use only the supplied battery charger.
- Unplug the battery charger from the wall outlet after the battery is charged (for approximately 4 hours). There is no safety problem if the charger remains plugged in, but we recommend that you unplug it within 20 hours.

Battery Installation

See illustrations 1

1-3. TO USE WITH BATTERY

Battery replacement
When the BATT indicator glows faintly and playback sound becomes distorted or unstable, replace the battery with a new one.

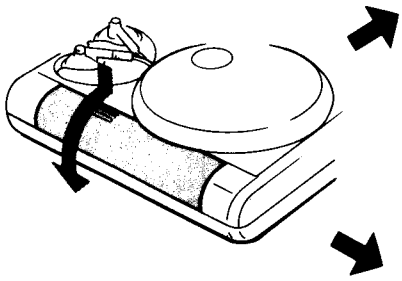
Concerning battery life and other power sources, see "Specifications" on page 1.

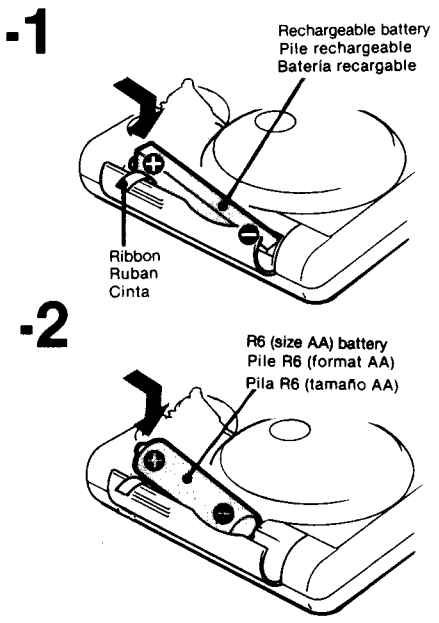
Notes
- When the unit is not to be used for a long period of time or is to be operated extensively on other power sources, remove the battery to avoid damage caused by battery leakage and corrosion.
- The unit cannot be operated on the internal battery when either the AC power adaptor or car battery cord is connected to the unit.

Battery Installation

See illustrations 2

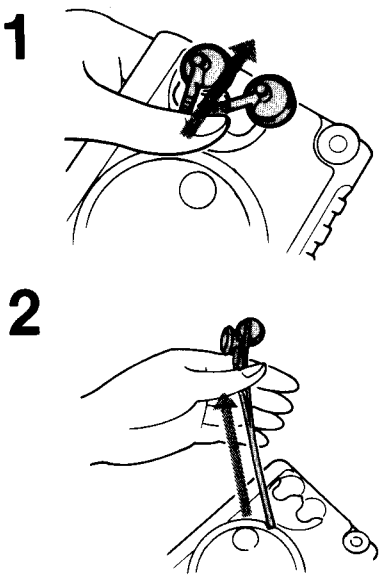
BATTERY INSTALLATION





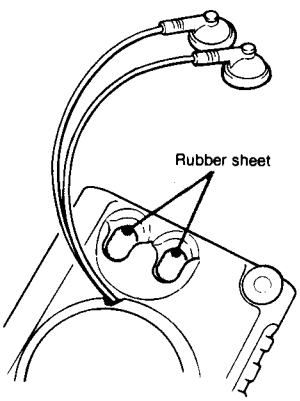
1-4. TO USE THE EARPHONES

To pull out the cord

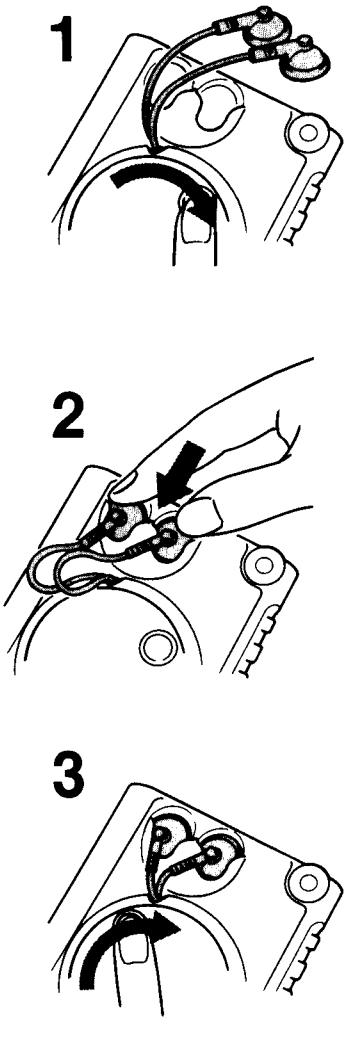


Notes
- Do not pull only one lead of the cord or the pair of ear pieces to extend the cord, as it may result in trouble.
- The cord length is about 1 m (3 feet). Do not extend the cord forcibly when the end mark on the cord appears.
- If the cord stops at the middle when pulling it out, first turn the cord reel in the direction of the arrow and then pull out the cord.

About the rubber sheet
When you do not use the earpads, attach the rubber sheet as shown in the illustration in order to prevent the earphones from dropping out of the holder.



To wind the cord

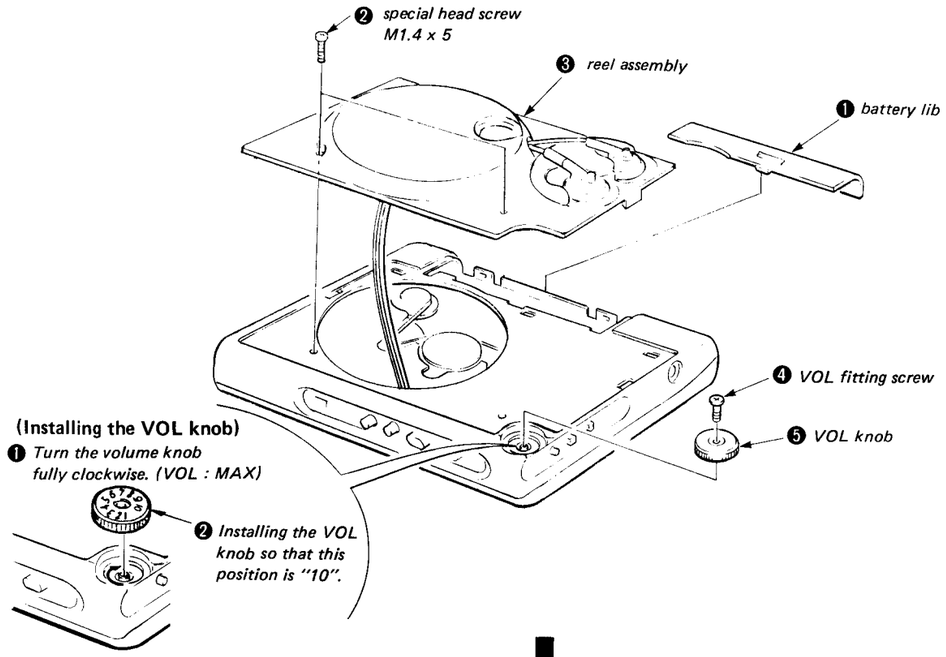


Notes
- Do not wind the cord counterclockwise, as it may be damaged. However, if you wind the cord counterclockwise by mistake, do not pull it out directly. First turn the cord reel in the direction of the arrow and then pull out the cord.
- The cord cannot be wound completely if it is twisted. In this case, pull out the cord once and wind after it is set right.

SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

REEL ASSEMBLY AND BATTERY REMOVAL



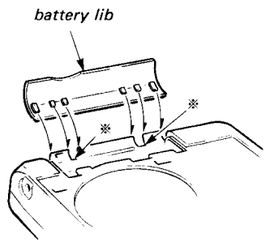
(Installing the VOL knob)

❶ *Turn the volume knob fully clockwise. (VOL : MAX)*

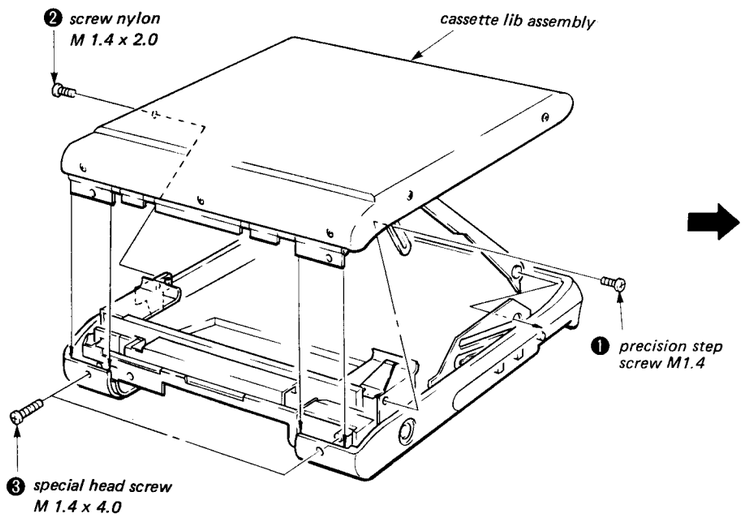
❷ *Installing the VOL knob so that this position is "10".*

BATTERY LIB REMOVAL

The battery lib is fixed by the claw, so insert a minus driver into the portion ※ then remove by turning the driver.

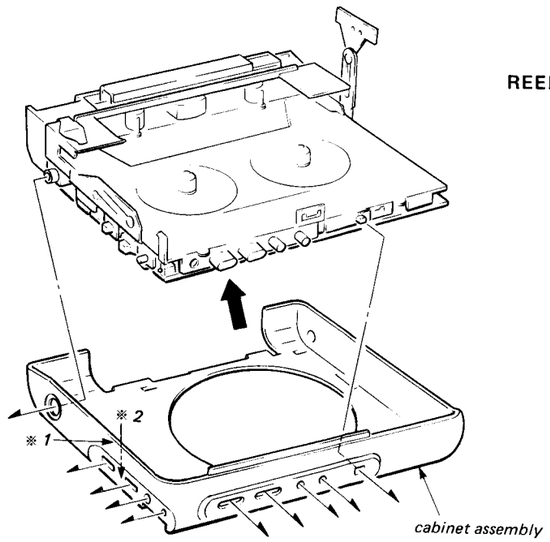


CASSETTE LIB REMOVAL



MD portion removal is same as WM-102.
Please refer to the service manual regarding WM-102.

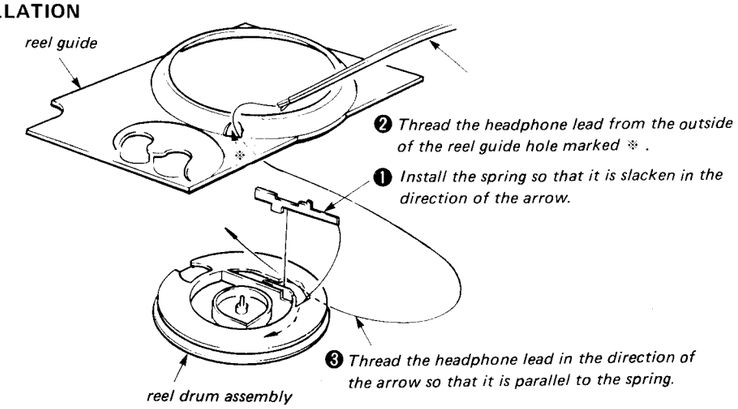
CABINET ASSEMBLY REMOVAL



After opening the portion ※1 to the outside, remove PHONES, JACK, LED button from the cabinet assembly then remove the unit in the direction of the arrow.

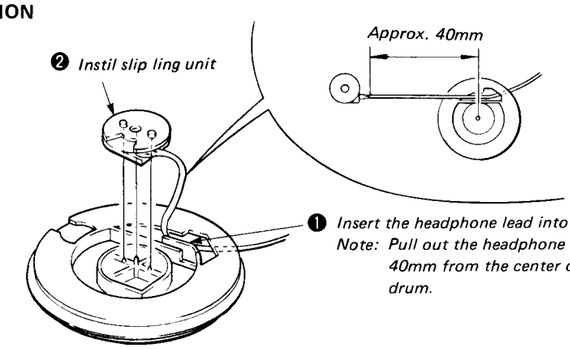
Note: If the buttons caught the unit, do not remove forcefully. When this occurs, insert a minus driver into the portion ※2 then remove by turning the driver.

HEADPHONE LEAD INSTALLATION

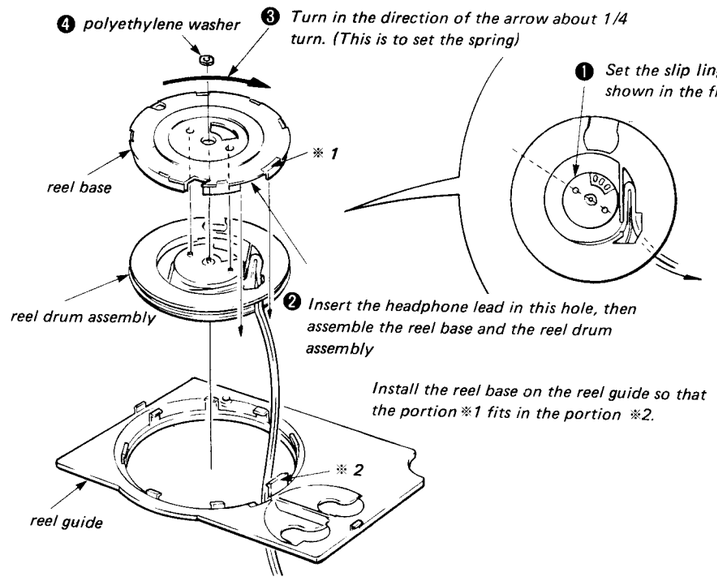

reel guide
❷ Thread the headphone lead from the outside of the reel guide hole marked ※ .
❶ Install the spring so that it is slacken in the direction of the arrow.
❸ Thread the headphone lead in the direction of the arrow so that it is parallel to the spring.
reel drum assembly

❹ *Solder the headphone lead to the srip ling unit.*

SLIP LING UNIT INSTALLATION


❷ Instil slip ling unit
Approx. 40mm
❶ Insert the headphone lead into the guide.
Note: Pull out the headphone lead about 40mm from the center of the reel drum.

REEL BASE INSTALLATION


❹ polyethylene washer
❸ Turn in the direction of the arrow about 1/4 turn. (This is to set the spring)
❶ Set the slip ling unit as shown in the figure.
※ 1
reel base
reel drum assembly
❷ Insert the headphone lead in this hole, then assemble the reel base and the reel drum assembly
Install the reel base on the reel guide so that the portion ※1 fits in the portion ※2.
※ 2
reel guide

ad the headphone lead from the outside
e reel guide hole marked ※ .

ll the spring so that it is slacken in the
ction of the arrow.

headphone lead in the direction of
o that it is parallel to the spring.

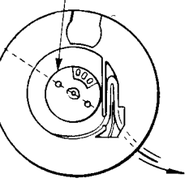
it.

x. 40mm

headphone lead into the guide.
l out the headphone lead about
nm from the center of the reel
m.

row about 1/4

❶ Set the slip ling unit as shown in the figure.



n this hole, then
he reel drum

on the reel guide so that
in the portion ※2.

SECTION 3
ADJUSTMENTS

MECHANICAL ADJUSTMENTS AND MEASUREMENT

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:

   playback head — rubber belts
   capstan — idlers
   pinch roller

2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (1.3V) unless otherwise noted.

Torque Measurement

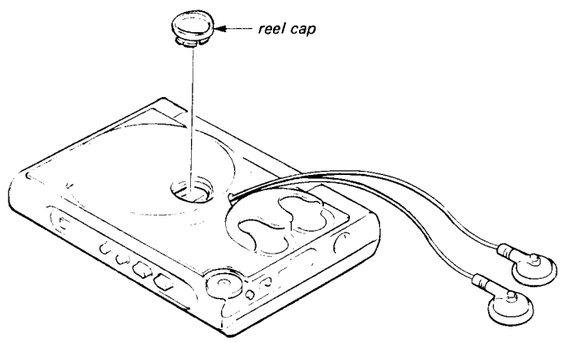
Mode	Torque Meter	Meter Reading
FWD	CQ-102C	23 – 40 g•cm 0.32 – 0.55 oz•inch
FWD Back Tension		1.5 – 3 g•cm 0.02 – 0.04 oz•inch
REV	CQ-102RB	23 – 40 g•cm 0.32 – 0.55 oz•inch
REV Back Tension		1.5 – 3 g•cm 0.02 – 0.04 oz•inch
FF	CQ-201B	more than 60 g•cm more than 0.83 oz•inch
REW		more than 60 g•cm more than 0.83 oz•inch

Tape Pulling Force Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 50 g more than 1.76 oz
REV	CQ-403R	more than 50 g more than 1.76 oz

• PREPARATION

1. Remove the reel cap.
2. Pull the ear receiver coard so that the each adjustments can be performed.

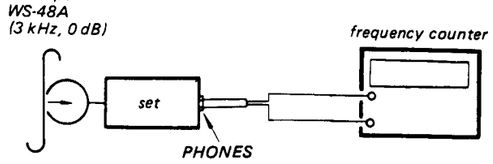


Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment
P-4-A063	6.3kHz, –10dB	Playback Head, Azimuth Adjustment

Tape Speed Adjustment

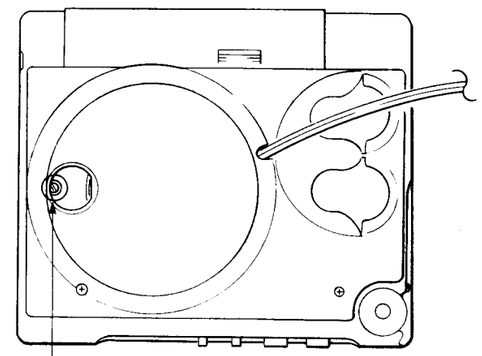
Procedure:



1. Playback WS-48A (Tape center portion) in FWD mode.
   Adjust the RV601 so that the frequency counter reads 3,000 Hz ± 15 Hz.
2. Playback WS-48A (Tape center portion) in REV mode.
   Confirm that the reading of frequency counter is within 1.5% from the reading in step 1.

Adjustment Location:

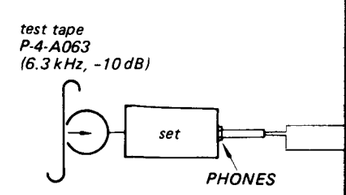
Main Board – Side B –



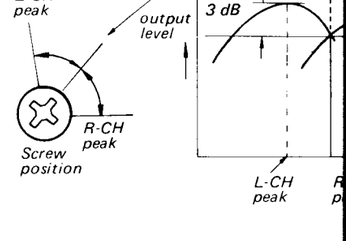
Playback Head Azimuth Adjustment

Procedure:

1. Playback mode



2. Turn the adjustment screw for
   output levels. If these levels do n
   the adjustment screw where b
   levels match together within 3 d



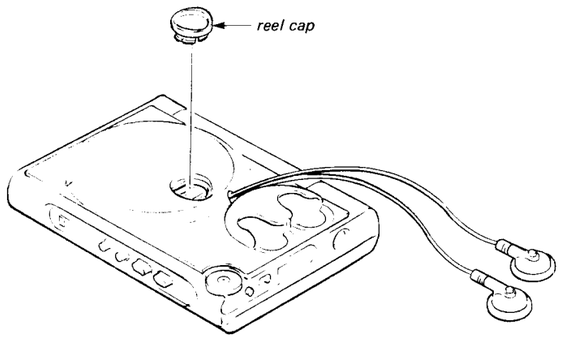
Adjustment should be made in b
of FWD and REV.
Adjustment screws should be st
in the clockwise direction.
After the adjustment, lock the
locking compound.

Adjustment Location:

ECTION 3
JUSTMENTS

• PREPARATION

1. Remove the reel cap.
2. Pull the ear receiver coard so that the each adjustments can be performed.

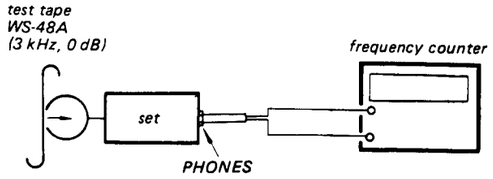


Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment
P-4-A063	6.3kHz, −10dB	Playback Head, Azimuth Adjustment

Tape Speed Adjustment

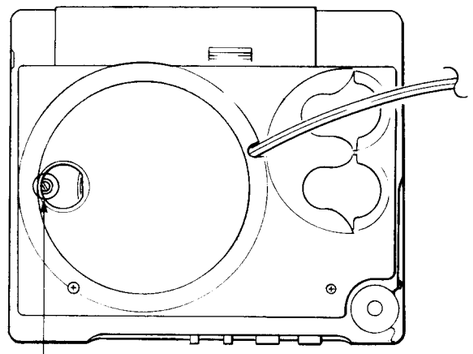
Procedure:



1. Playback WS-48A (Tape center portion) in FWD mode.
   Adjust the RV601 so that the frequency counter reads 3,000 Hz ± 15 Hz.
2. Playback WS-48A (Tape center portion) in REV mode.
   Confirm that the reading of frequency counter is within 1.5% from the reading in step 1.

Adjustment Location:

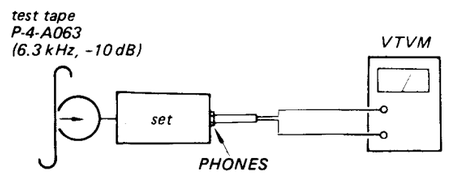
Main Board – Side B –



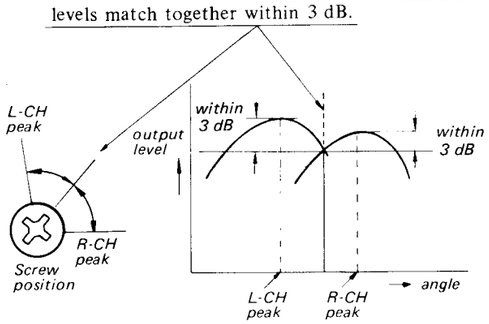
Playback Head Azimuth Adjustment

Procedure:

1. Playback mode

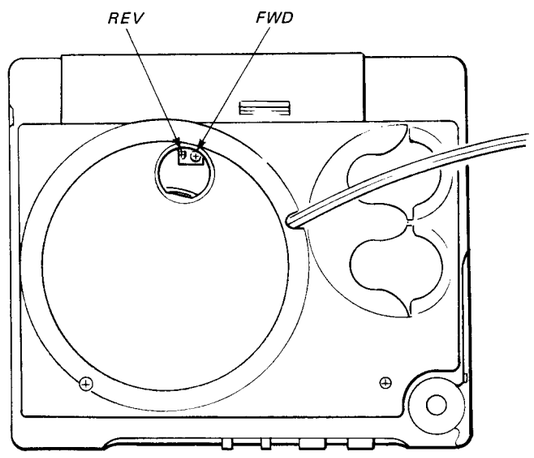


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw where both of output levels match together within 3 dB.

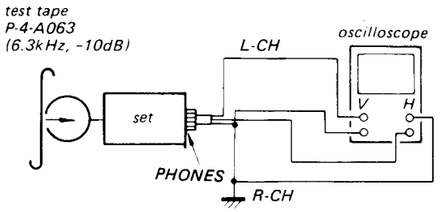


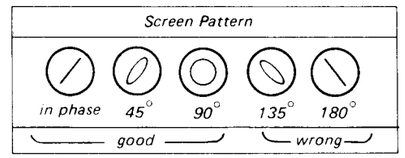
Adjustment should be made in both directions of FWD and REV.
Adjustment screws should be stopped turning in the clockwise direction.
After the adjustment, lock the screws with locking compound.

Adjustment Location:



6. Phase Check

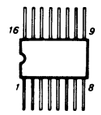




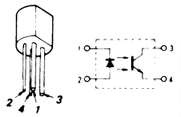
SECTION 4
DIAGRAMS

- Semiconductor Lead Layouts

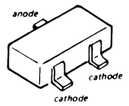
TA7795F



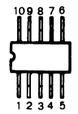
NJL5141E-AB



1S2835

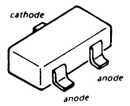


LA4535M

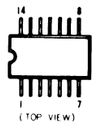


GL2PR9

1S2837

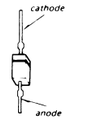


TC74HC00F

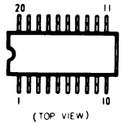


2SB624-BV4
2SC2712G
2SD596

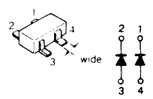
1SS283



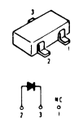
CX20123



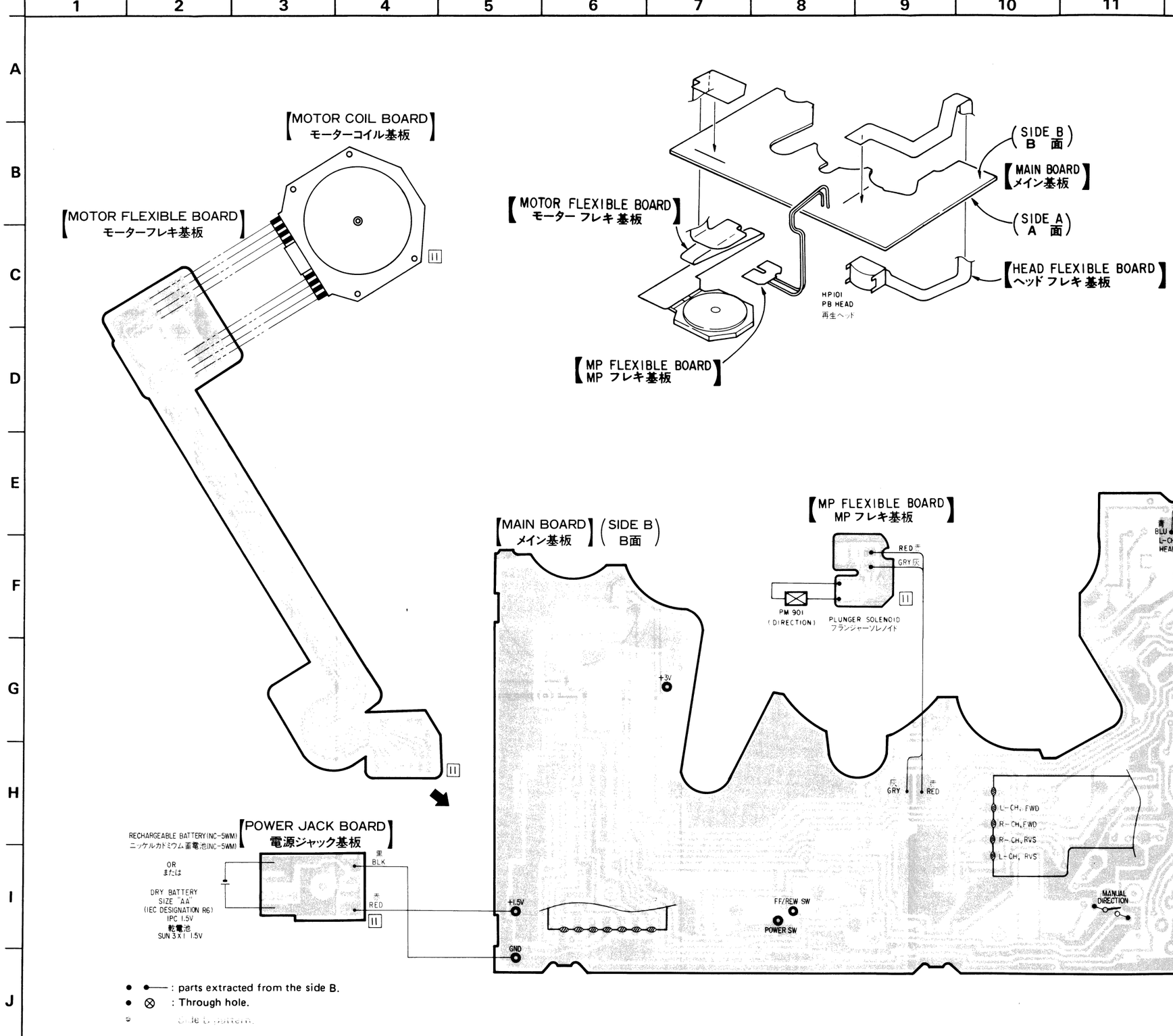
DWA010



RD3.9M-B2



4-1. MOUNTING DIAGRAM – Former Type –



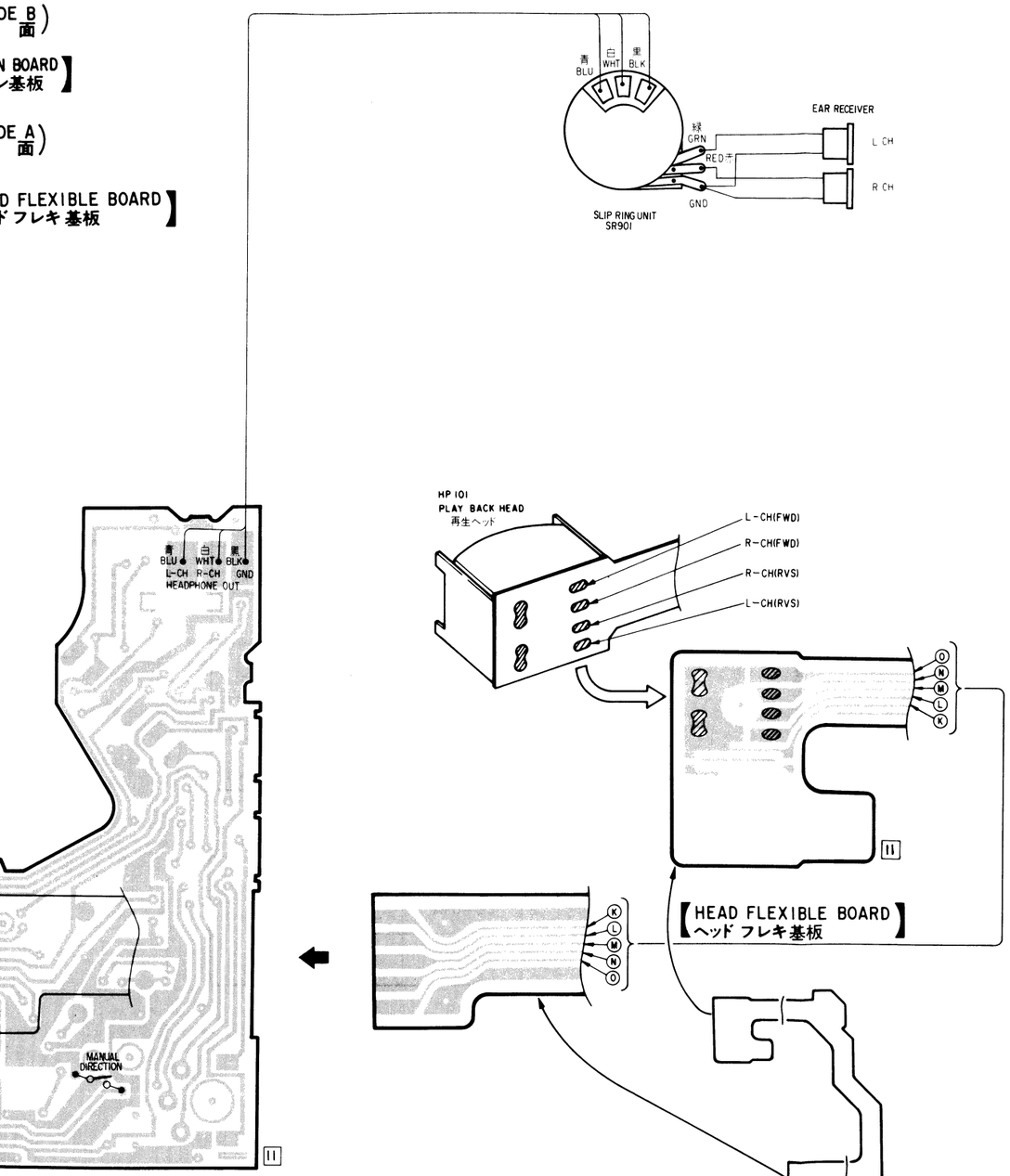
- ●—— : parts extracted from the side B.
- ⊗ : Through hole.
- Side B pattern.

11 12 13 14 15 16 17

DE B)
面
N BOARD】
ン基板

DE A)
面

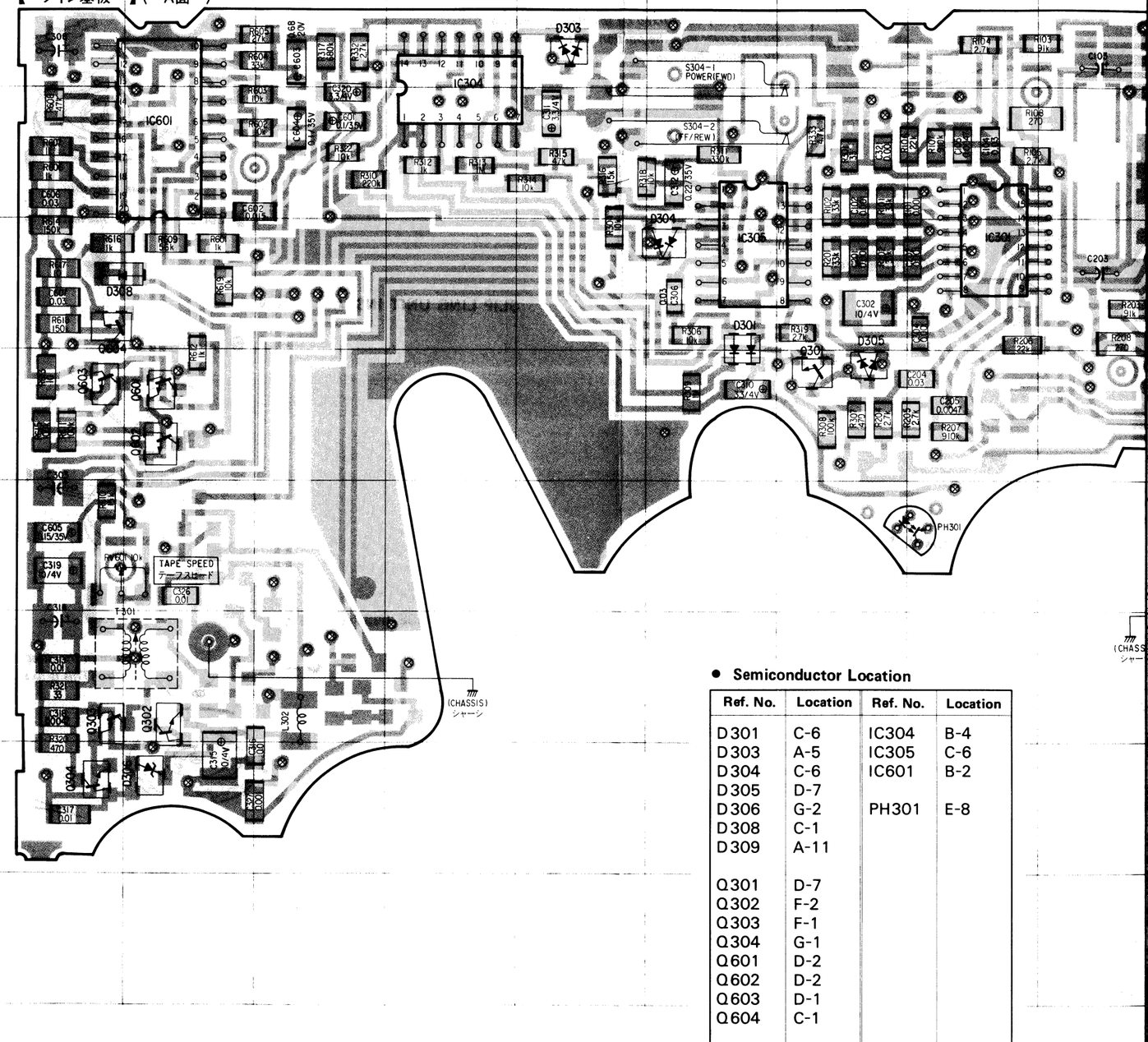
D FLEXIBLE BOARD】
ドフレキ基板



1 2 3 4 5 6 7 8 9

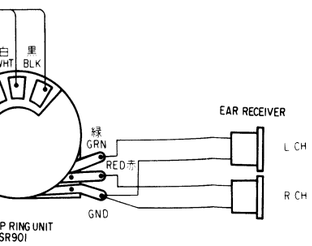
【MAIN BOARD】(SIDE A)
メイン基板 A面

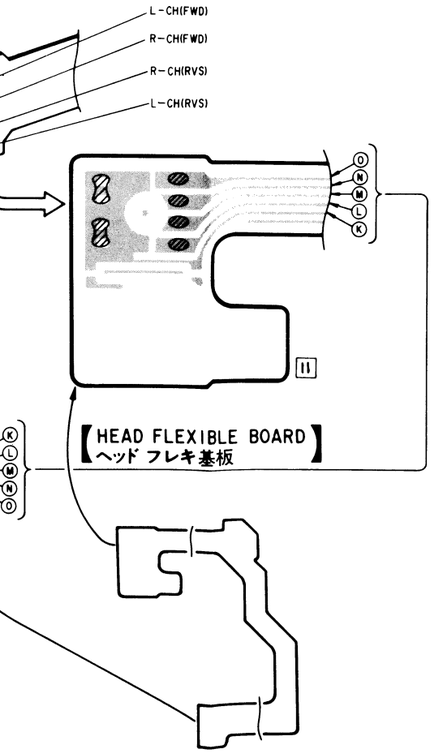
A B C D E F G H

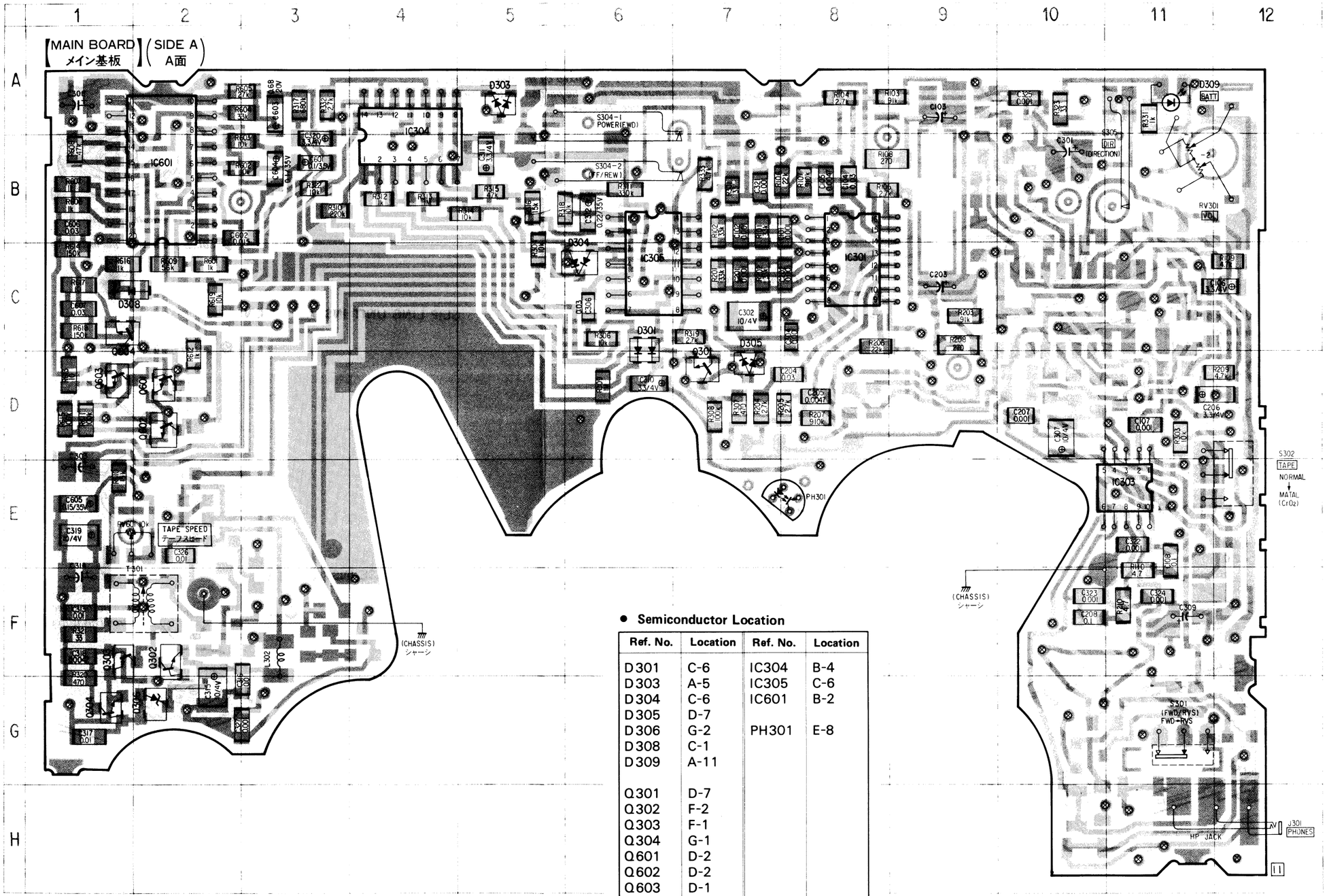


- Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D301	C-6	IC304	B-4
D303	A-5	IC305	C-6
D304	C-6	IC601	B-2
D305	D-7		
D306	G-2	PH301	E-8
D308	C-1		
D309	A-11		
Q301	D-7		
Q302	F-2		
Q303	F-1		
Q304	G-1		
Q601	D-2		
Q602	D-2		
Q603	D-1		
Q604	C-1		
IC301	C-8		
IC303	E-11		



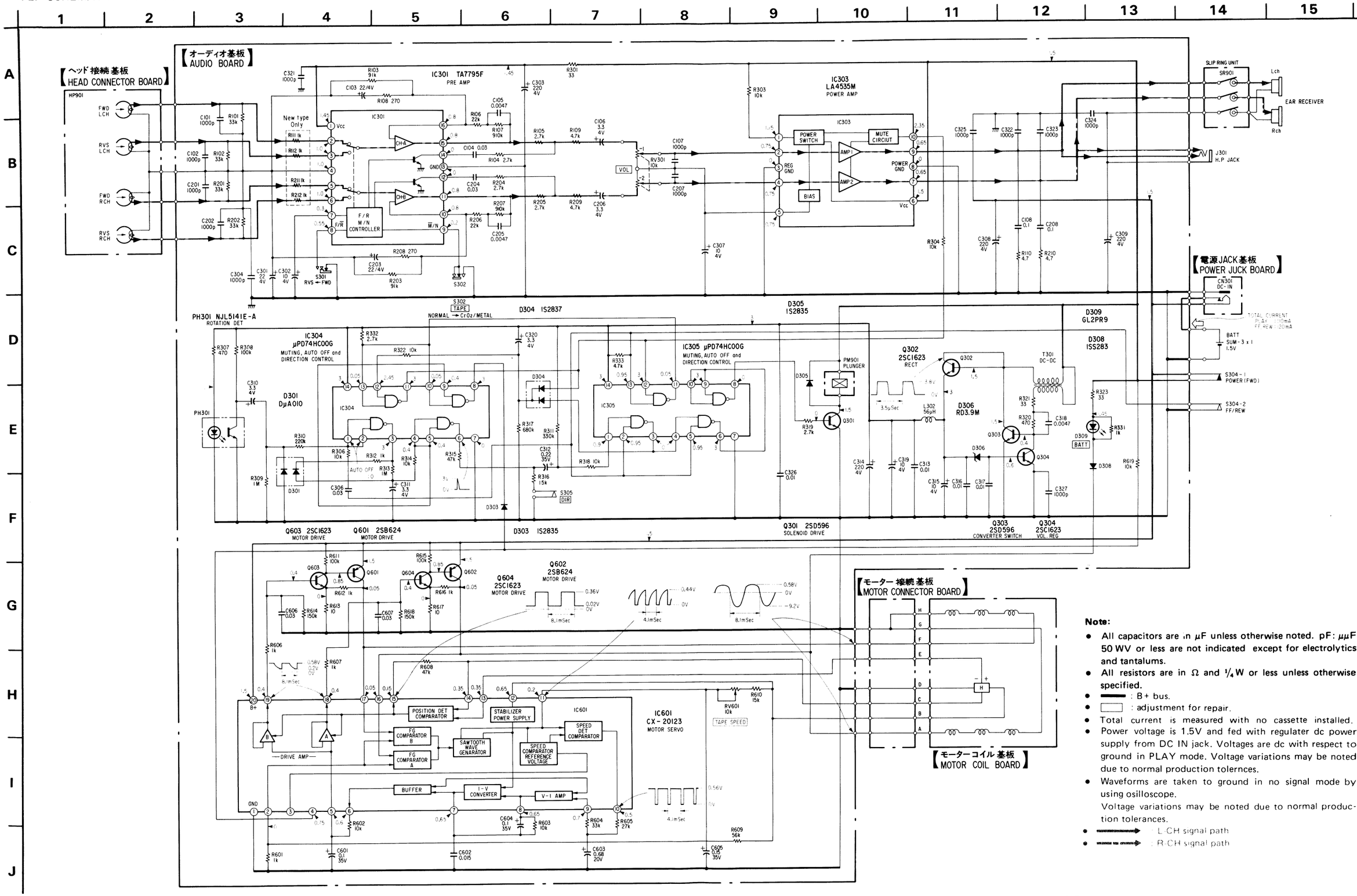




- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D301	C-6	IC304	B-4
D303	A-5	IC305	C-6
D304	C-6	IC601	B-2
D305	D-7		
D306	G-2	PH301	E-8
D308	C-1		
D309	A-11		
Q301	D-7		
Q302	F-2		
Q303	F-1		
Q304	G-1		
Q601	D-2		
Q602	D-2		
Q603	D-1		
Q604	C-1		
IC301	C-8		
IC303	E-11		

4-2. SCHEMATIC DIAGRAM



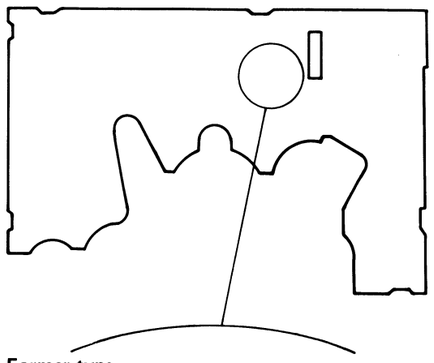
Note:

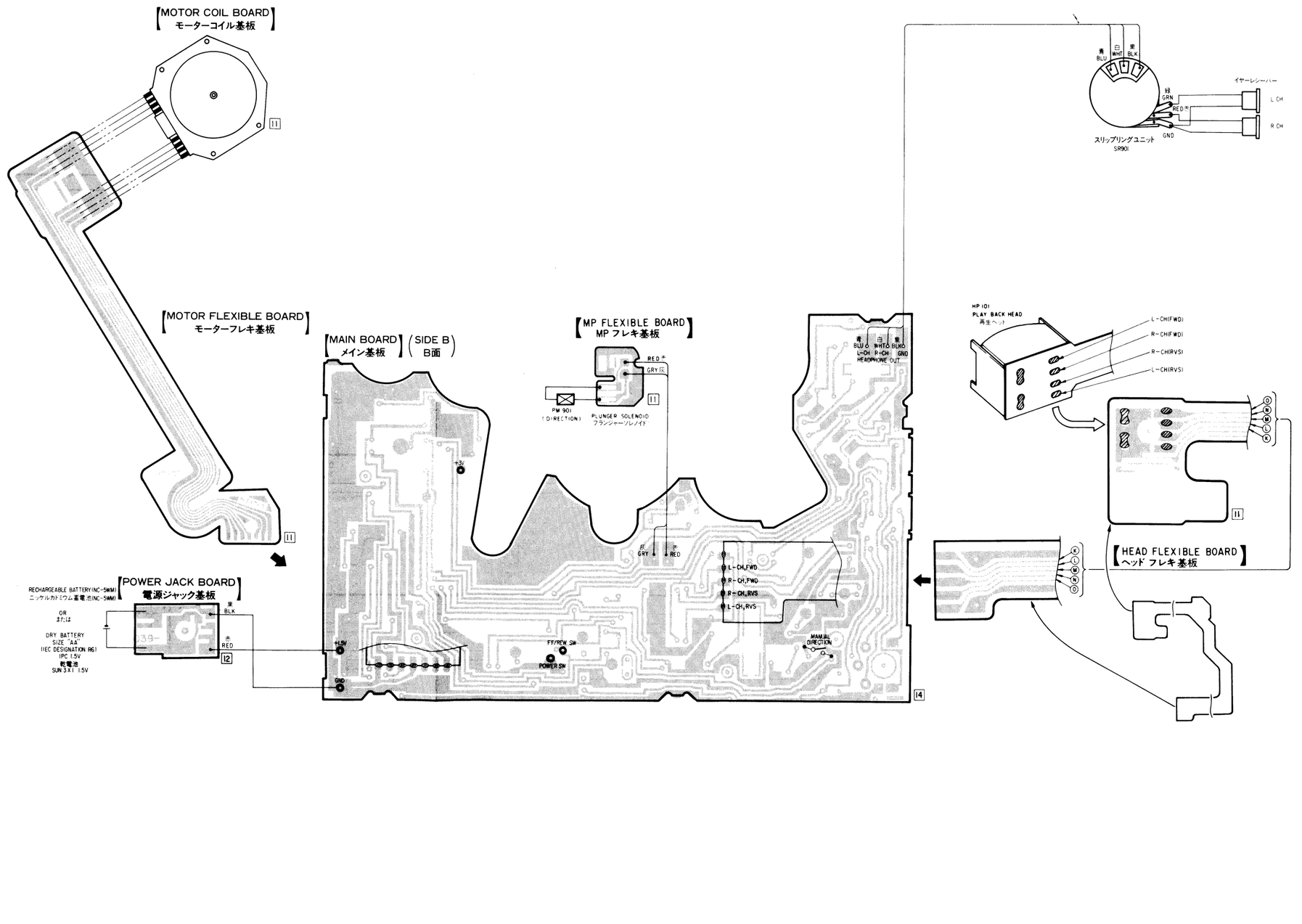
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▬▬ : B+ bus.
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is 1.5V and fed with regulater dc power supply from DC IN jack. Voltages are dc with respect to ground in PLAY mode. Voltage variations may be noted due to normal production tolernces.
- Waveforms are taken to ground in no signal mode by using osilloscope.
  Voltage variations may be noted due to normal production tolerances.
- ▬▬▶ : L-CH signal path
- ▬▬▶ : R-CH signal path

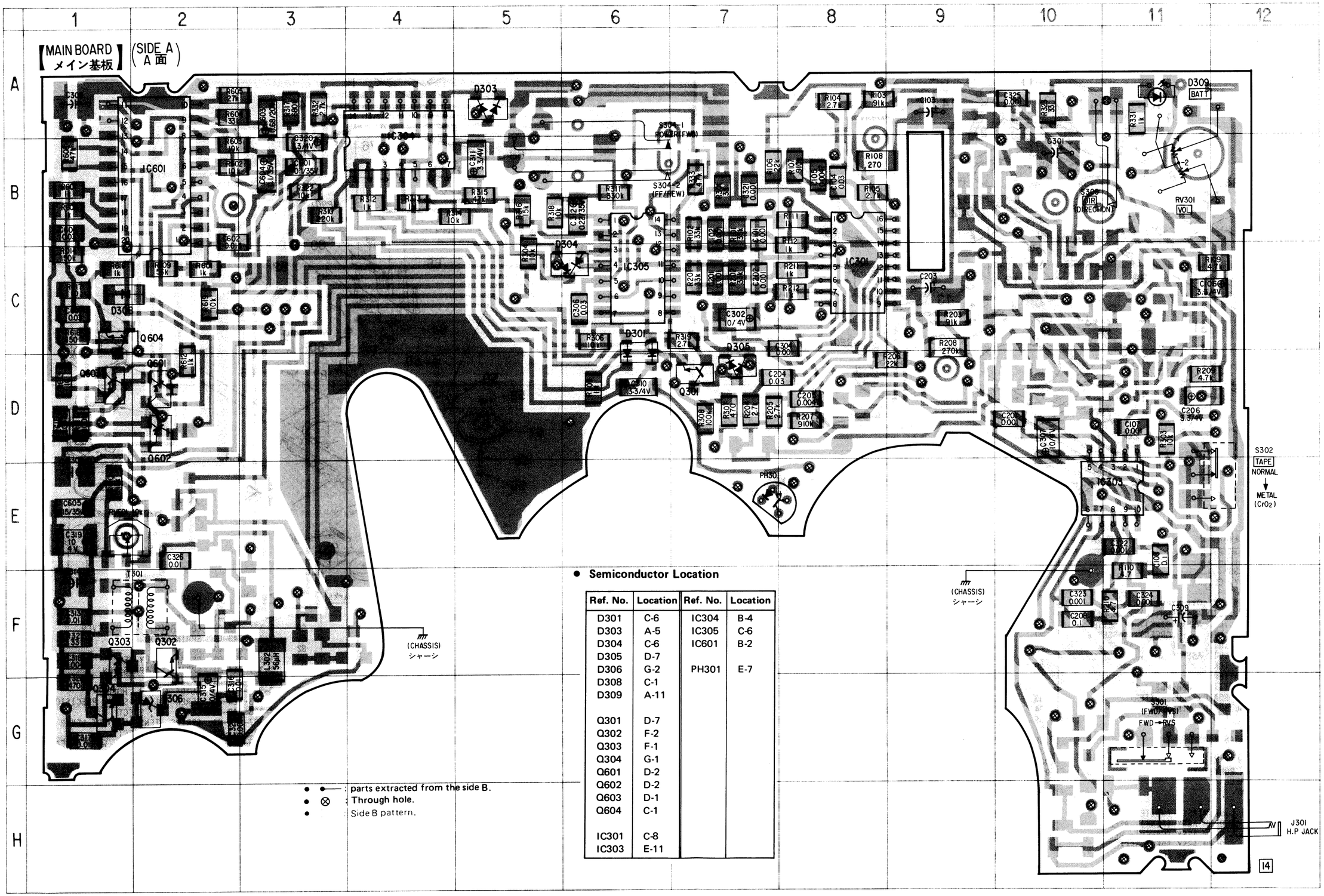
4-3. MOUNTING DIAGRAM – New Type –

There are two types of MAIN BOARD, former type and new type.
Distinguish former type from new type by the illustration below.

MAIN BOARD
SIDE A







● ●— : parts extracted from the side B.
● ⊗ : Through hole.
● Side B pattern.

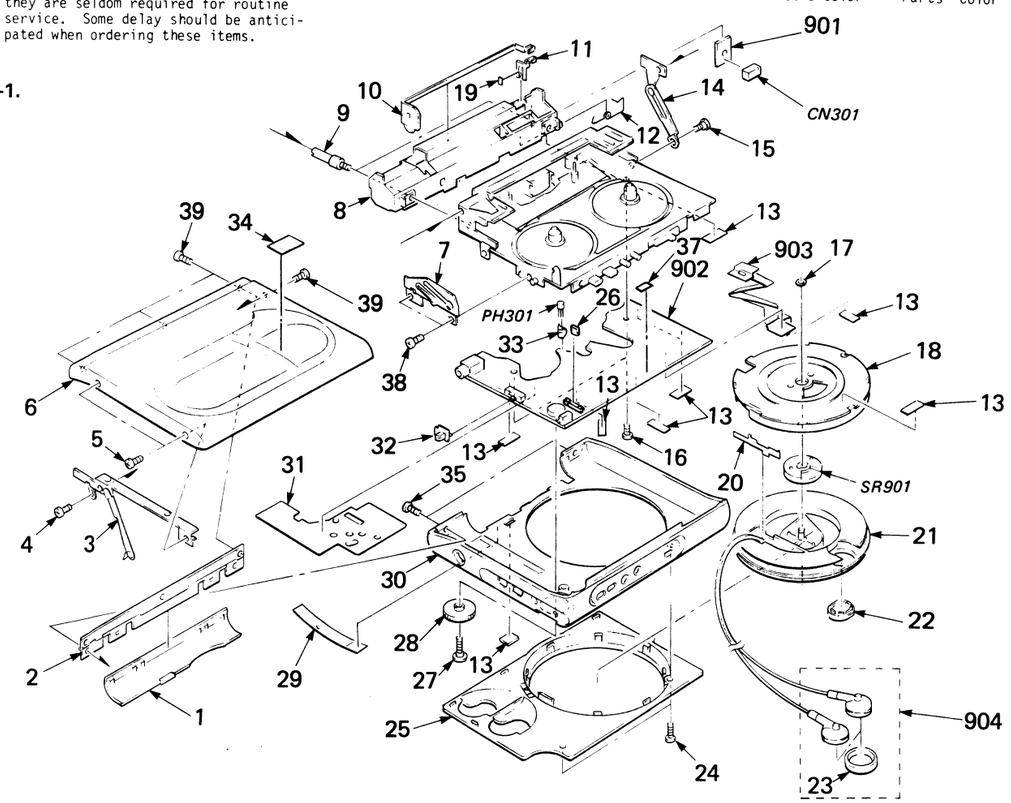
● **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D301	C-6	IC304	B-4
D303	A-5	IC305	C-6
D304	C-6	IC601	B-2
D305	D-7		
D306	G-2	PH301	E-7
D308	C-1		
D309	A-11		
Q301	D-7		
Q302	F-2		
Q303	F-1		
Q304	G-1		
Q601	D-2		
Q602	D-2		
Q603	D-1		
Q604	C-1		
IC301	C-8		
IC303	E-11		

SECTION 5
EXPLODED VIEWS AND PARTS LIST

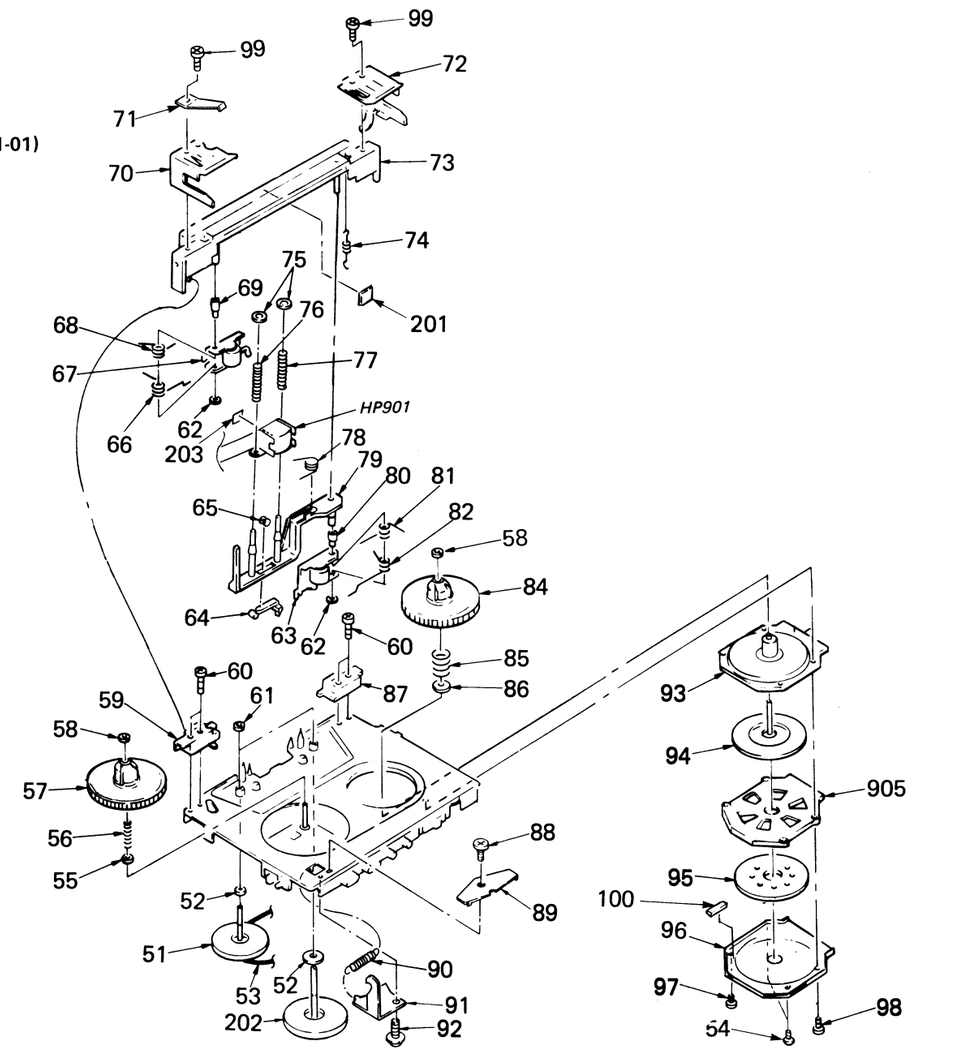
NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color Indication of Appearance Parts
  Example: (RED) ..... KNOB, BALANCE (WHITE)
  Cabinet's Color — Parts' Color

5-1.



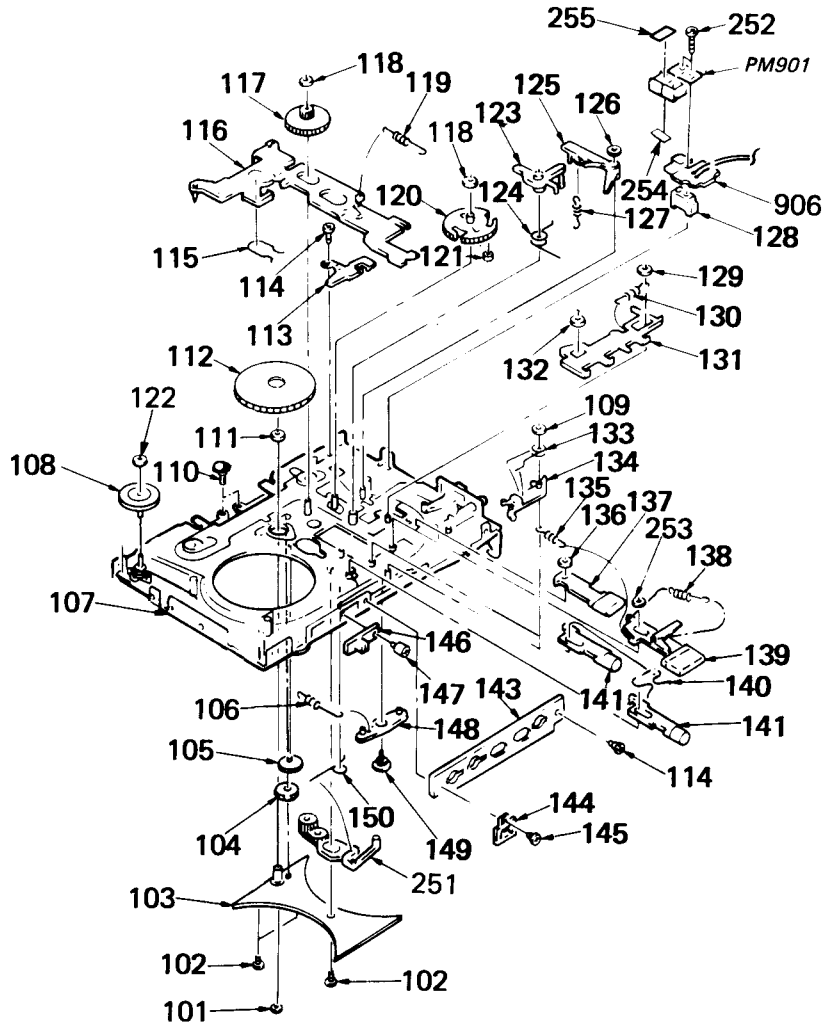
No.	Part No.	Description	Remarks
1	3-340-005-01	LID, BATTERY	
2	X-3330-455-1	HINGE ASSY	
3	X-3330-454-1	ARM ASSY, CLICK	
4	3-704-260-01	SCREW	
5	3-704-197-11	SCREW (M1.4X2.0), NYLON	
6	X-3330-458-1	(WHITE)...LID ASSY (WHITE), CASSETTE	
	X-3330-460-1	(PINK)....LID ASSY (PINK), CASSETTE	
	X-3330-461-1	(GREEN)...LID ASSY (GREEN), CASSETTE	
	X-3330-462-1	(RED).....LID ASSY (RED), CASSETTE	
	X-3330-466-1	(GRAY)....LID ASSY (GRAY), CASSETTE	
7	*3-340-015-01	PLATE, CLICK	
8	3-340-011-01	CASE, BATTERY	
9	3-340-028-01	SHAFT, FITTING, CABINET	
10	3-340-016-01	TERMINAL BOARD, PLUS BATTERY	
11	3-340-017-01	TERMINAL BOARD, MINUS BATTERY	
12	3-340-036-01	SPRING	
13	3-831-441-XX	CUSHION	
14	X-3330-456-1	STOPPER ASSY	
15	3-704-257-01	SCREW	
16	3-335-797-01	SCREW (M1.4X2.0), SPECIAL HEAD	
17	3-311-815-11	WASHER, POLYETHYLENE	
18	3-340-009-01	BASE, REEL	
19	3-553-567-00	CUSHION	
20	3-340-018-01	SPRING	
21	X-3330-457-1	(WHITE)...DRUM ASSY (WHITE), REEL	
	X-3330-463-1	(PINK)....DRUM ASSY (PINK), REEL	
	X-3330-464-1	(GREEN)...DRUM ASSY (GREEN), REEL	
	X-3330-465-1	(RED).....DRUM ASSY (RED), REEL	
	X-3330-467-1	(GRAY)....DRUM ASSY (GRAY), REEL	
22	3-340-010-01	(WHITE)...CAP, REEL (WHITE)	
	3-340-010-11	(PINK)....CAP, REEL (PINK)	
	3-340-010-21	(GREEN)...CAP, REEL (GREEN)	
	3-340-010-31	(RED).....CAP, REEL (RED)	
	3-340-010-41	(GRAY)....CAP, REEL (GRAY)	
23	2-357-923-01	RING	
24	3-703-816-21	SCREW (M1.4X5.0), SPECIAL HEAD	
25	3-340-042-01	(WHITE)...GUIDE, REEL (WHITE)	
	3-340-042-11	(PINK)....GUIDE, REEL (PINK)	
	3-340-042-21	(GREEN)...GUIDE, REEL (GREEN)	
	3-340-042-31	(RED).....GUIDE, REEL (RED)	
	3-340-042-41	(GRAY)....GUIDE, REEL (GRAY)	
26	3-317-714-01	BRACKET, SWITCH	
27	3-340-031-01	SCREW (M1.4X5), VOL FITTING	
28	3-340-032-01	KNOB, VOL	
29	9-911-816-01	RIBBON, BATTERY	
30	X-3330-468-1	CABINET ASSY	
31	3-340-033-01	PAPER, SHIELD	
32	3-340-007-01	KNOB, SW	
33	3-329-761-01	ADJUSTOR, REFLECTOR	
34	3-703-710-01	STICKER, SONY SYMBOL (12)	
35	3-703-816-12	SCREW (M1.4X4.0), SPECIAL HEAD	
37	3-703-929-01	SPACER (P)	
38	3-331-047-01	SCREW (M1.4X1.4),SPECIAL HEAD	
39	3-704-197-01	SCREW (M1.4X1.6), NYLON	
901	*1-622-039-11	PC BOARD, POWER JACK	
902	A-3070-195-A	MOUNTED PCB, AUDIO	
903	1-622-036-11	PC BOARD, FLEXIBLE	
904	8-952-338-90	(GRAY)....HEADPHONE MDR-E214PT/B SET (BLACK)	23
	8-952-338-91	(WHITE)...HEADPHONE MDR-E214PT/W SET (WHITE)	23
	8-952-338-92	(RED).....HEADPHONE MDR-E214PT/R SET (RED)	23
	8-952-338-94	(GREEN)...HEADPHONE MDR-E214PT/N SET (GREEN)	23
	8-952-338-97	(PINK)....HEADPHONE MDR-E214PT/P SET (PINK)	23
CN301	1-507-923-11	JACK, POWER, OUTSIDE	
PH301	8-719-751-43	DIODE NJL5141E-AB	
SR901	1-464-769-11	RING UNIT, SLIP	

5-2. MD (1)
(MT-WM51-01)



No.	Part No.	Description	Remarks
51	X-3329-670-1	FLYWHEEL ASSY (N)	
52	3-321-394-11	WASHER	
53	3-329-695-01	BELT	
54	3-338-687-11	SCREW (M1.4X3), TAPPING	
55	3-315-415-21	WASHER (1.5-2.3)	
56	3-331-013-01	SPRING, COMPRESSION	
57	X-3329-705-1	GEAR (R) ASSY, T REEL	
58	3-578-242-11	WASHER	
59	3-329-736-01	GUIDE (RIGHT), HOLDER	
60	3-704-244-61	SCREW (P1.7X4.0)	
61	3-331-007-01	WASHER	
62	3-331-036-11	WASHER	
63	X-3329-602-1	PINCH LEVER (R) ASSY	
64	3-333-101-01	LEVER, AZIMUTH	
65	3-333-102-01	SHAFT, AZIMUTH	
66	3-341-431-01	SPRING (NB)	
67	X-3329-601-1	PINCH LEVER (N) ASSY	
68	3-329-642-01	SPRING (N)	
69	3-329-637-01	COLLAR, PINCH LEVER	
70	3-329-714-01	HOLDER (RIGHT), CASSETTE	
71	*3-331-087-21	SPRING	
72	3-329-713-12	HOLDER (LEFT), CASSETTE	
73	X-3329-708-1	HOLDER (TD) ASSY	
74	3-331-012-01	SPRING (HOLDER), TENSION	
75	3-335-902-01	WASHER	
76	3-337-943-01	SPRING, COMPRESSION	
77	3-337-942-01	SPRING, COMPRESSION	
78	3-338-616-01	SPRING	
79	X-3329-765-1	LEVER ASSY, HEAD	
80	3-331-027-01	COLLAR (R), PINCH LEVER	
81	3-329-643-01	SPRING (R)	
82	3-329-641-01	SPRING (R)	
84	3-329-729-01	GEAR, SUPPLY REEL	
85	3-331-014-01	SPRING, COMPRESSION	
86	3-320-354-01	WASHER	
87	3-329-737-01	GUIDE (LEFT), HOLDER	
88	3-333-124-01	SCREW (M1.4), STEP, PRECISION	
89	*3-335-942-01	LEVER (B), EJECT	
90	3-337-964-01	SPRING, TENSION(EJECT LEVER A)	
91	*3-335-943-01	LEVER (A), EJECT	
92	3-338-625-01	SCREW (M1.4X1.4), WASHER HEAD	
93	X-3329-625-1	CHASSIS ASSY, MOTOR	
94	A-3133-236-A	WHEEL BLOCK ASSY, MOTOR	
95	3-333-173-01	PLATE (S), HYSTERESIS	
96	*3-333-126-01	PLATE (R), SHIELD, MOTOR	
97	7-627-551-98	PRECISION SCREW +P1.4X2.2	
98	3-703-816-71	SCREW (M1.4X3.0), SPECIAL HEAD	
99	3-341-432-41	SCREW (M1.4X2.5), TAPPING	
100	*3-335-904-01	SHEET, INSULATING	
201	*3-335-906-01	SHEET, ADHESIVE, DOUBLE-FACE	
202	X-3331-012-1	FLYWHEEL ASSY	
203	*3-338-667-01	SHEET, ADHESIVE, DOUBLE-FACE	
905	1-462-230-11	COIL, MOTOR (STATOR)	
HP901	1-543-310-11	HEAD, MAGNETIC (PLAYBACK)	

5-3. MD (2)



No.	Part No.	Description	Remarks
101	3-331-007-01	WASHER	
102	3-331-047-01	SCREW (M1.4X1.4),SPECIAL HEAD	
103	X-3329-618-1	COVER ASSY, REEL	
104	3-329-689-01	GEAR (B), T	
105	3-329-688-01	GEAR (A), T	
106	3-331-018-01	SPRING, TENSION	
107	X-3329-794-1	CHASSIS COMP ASSY	
108	3-338-628-01	WHEEL, REVERSE	
109	3-331-036-01	WASHER	
110	3-331-097-01	SCREW, AZIMUTH	
111	3-321-394-21	WASHER	
112	X-3329-749-1	PULLEY (B) COMP ASSY, MIDWAY	
113	3-329-685-01	SPRING (A)	
114	3-703-816-31	SCREW (M1.4X1.6), SPECIAL HEAD	
115	3-329-698-01	SPRING (B)	
116	X-3329-755-1	LEVER (AD) (P) ASSY, DRIVING	
117	3-329-687-01	GEAR, DRIVING	
118	3-315-384-11	WASHER, STOPPER	
119	3-337-962-01	SPRING, TENSION (DRIVING LEVER)	
120	3-329-730-01	GEAR, CAM	
121	3-329-693-01	COLLAR, CAM GEAR	
122	3-338-645-31	WASHER (0.8-2.5)	
123	3-329-733-01	LEVER (A), SHUT-OFF	
124	3-329-700-01	SPRING	
125	X-3329-615-1	LEVER ASSY, TRIGGER	
126	3-315-384-21	WASHER, STOPPER	
127	3-331-011-01	SPRING (TRIGGER LEVER), TENSION	
128	*3-331-041-01	BRACKET, P	

No.	Part No.	Description	Remarks
129	3-578-224-00	WASHER	
130	3-331-009-01	SPRING (LOCK LEVER), TENSION	
131	3-329-731-01	LEVER, LOCK	
132	3-311-815-21	WASHER, POLYETHYLENE	
133	3-329-702-01	SPRING	
134	3-329-692-05	LEVER, SW	
135	3-331-010-01	SPRING (STOP LEVER), TENSION	
136	3-578-242-21	WASHER	
137	X-3329-679-1	LEVER ASSY, PLAY	
138	3-331-111-01	SPRING, TENSION	
139	X-3329-678-1	LEVER ASSY, STOP	
140	3-331-016-01	SPRING	
141	X-3329-696-1	LEVER (A) ASSY, FR	
143	*3-329-734-11	HOLDER, BUTTON	
144	3-331-043-01	SPRING	
145	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
146	3-337-994-01	KNOB, SAFETY LOCK	
147	3-329-697-01	SCREW, STEP, PRECISION	
148	X-3329-617-1	LEVER (B) ASSY, DRIVING	
149	3-331-056-01	SHAFT, DRIVING LEVER (B)	
150	3-329-699-01	SPRING	
251	X-3329-626-1	LEVER (B) ASSY, F.R	
252	7-627-551-37	SCREW, PRECISION +P 1.4X5	
253	3-341-434-01	WASHER, STOPPER	
254	*3-338-668-01	SHEET	
255	3-703-929-01	SPACER, SWITCH	
906	1-617-019-11	PC BOARD, MP FLEXIBLE	
PM901	1-454-406-11	SOLENOID, PLUNGER	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC,
UPD...: μPD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
901	*1-622-039-11	PC BOARD, POWER JACK		
902	A-3070-195-A	MOUNTED PCB, AUDIO		
903	1-622-036-11	PC BOARD, FLEXIBLE		
904	8-952-338-90	(GRAY)....HEADPHONE MDR-E214PT/B SET (BLACK)		
	8-952-338-91	(WHITE)...HEADPHONE MDR-E214PT/W SET (WHITE)		
	8-952-338-92	(RED).....HEADPHONE MDR-E214PT/R SET (RED)		
	8-952-338-94	(GREEN)...HEADPHONE MDR-E214PT/N SET (GREEN)		
	8-952-338-97	(PINK)....HEADPHONE MDR-E214PT/P SET (PINK)		
905	1-462-230-11	COIL, MOTOR (STATOR)		
906	1-617-019-11	PC BOARD, MP FLEXIBLE		
C101	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C102	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C103	1-124-430-00	ELECT 22MF	20%	4V
C104	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V
C105	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V
C106	1-135-103-00	TANTAL. CHIP 3.3MF	10%	4V
C107	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C108	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C201	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C202	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C203	1-124-430-00	ELECT 22MF	20%	4V
C204	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V
C205	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V
C206	1-135-103-00	TANTAL. CHIP 3.3MF	10%	4V
C207	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C208	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C301	1-124-430-00	ELECT 22MF	20%	4V
C302	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C303	1-124-576-11	ELECT 220MF	20%	4V
C304	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C306	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V
C307	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C308	1-124-576-11	ELECT 220MF	20%	4V
C309	1-124-576-11	ELECT 220MF	20%	4V
C310	1-135-103-00	TANTAL. CHIP 3.3MF	10%	4V
C311	1-135-103-00	TANTAL. CHIP 3.3MF	10%	4V
C312	1-135-072-21	TANTAL. CHIP 0.22MF	10%	35V
C313	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C314	1-124-576-11	ELECT 220MF	20%	4V
C315	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C316	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C317	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C318	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C319	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C320	1-135-103-00	TANTAL. CHIP 3.3MF	10%	4V

ELECTRICAL PARTS

Ref.No.	Part No.	Description		
C321	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C322	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C323	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C324	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C325	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C326	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C327	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C601	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C602	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C603	1-135-087-21	TANTAL. CHIP 0.68MF	10%	20V
C604	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C605	1-135-071-21	TANTAL. CHIP 0.15MF	10%	35V
C606	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V
C607	1-163-810-00	CERAMIC CHIP 0.03MF	10%	25V
CN301	1-507-923-11	JACK, POWER, OUTSIDE		
D301	8-719-940-45	DIODE DWA01O		
D303	8-719-100-03	DIODE 1S2835		
D304	8-719-100-05	DIODE 1S2837		
D305	8-719-100-03	DIODE 1S2835		
D306	8-719-105-58	DIODE RD3.9M-B2		
D308	8-719-118-21	DIODE 1SS283		
D309	1-807-305-11	DIODE GL2PR9 (LED)		
HP901	1-543-310-11	HEAD, MAGNETIC (PLAYBACK)		
IC301	8-759-208-46	IC TA7795F		
IC303	8-759-802-80	IC LA4535M		
IC304	8-759-204-94	IC TC74HC00F		
IC305	8-759-204-94	IC TC74HC00F		
IC601	8-752-012-32	IC CX20123		
J301	1-562-974-11	JACK		
L302	1-410-213-51	INDUCTOR CHIP 56UH		
PH301	8-719-751-43	DIODE NJL5141E-AB		
PM901	1-454-406-11	SOLENOID, PLUNGER		
Q301	8-729-159-64	TRANSISTOR 2SD596		
Q302	8-729-271-22	TRANSISTOR 2SC2712G		
Q303	8-729-159-64	TRANSISTOR 2SD596		
Q304	8-729-271-22	TRANSISTOR 2SC2712G		
Q601	8-729-162-44	TRANSISTOR 2SB624-BV4		
Q602	8-729-162-44	TRANSISTOR 2SB624-BV4		
Q603	8-729-271-22	TRANSISTOR 2SC2712G		
Q604	8-729-271-22	TRANSISTOR 2SC2712G		
R101	1-216-085-00	METAL CHIP 33K	5%	1/10W
R102	1-216-085-00	METAL CHIP 33K	5%	1/10W
R103	1-216-096-00	METAL CHIP 91K	5%	1/10W
R104	1-216-059-00	METAL CHIP 2.7K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R105	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R106	1-216-081-00	METAL CHIP	22K	5%	1/10W
R107	1-216-120-00	METAL CHIP	910K	5%	1/10W
R108	1-216-184-00	METAL CHIP	270	5%	1/8W
R109	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R110	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R111	1-216-049-00	METAL CHIP	1K	5%	1/10W
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W
R201	1-216-085-00	METAL CHIP	33K	5%	1/10W
R202	1-216-085-00	METAL CHIP	33K	5%	1/10W
R203	1-216-096-00	METAL CHIP	91K	5%	1/10W
R204	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R205	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R206	1-216-081-00	METAL CHIP	22K	5%	1/10W
R207	1-216-120-00	METAL CHIP	910K	5%	1/10W
R208	1-216-184-00	METAL CHIP	270	5%	1/8W
R209	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R210	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R211	1-216-049-00	METAL CHIP	1K	5%	1/10W
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W
R301	1-216-013-00	METAL CHIP	33	5%	1/10W
R303	1-216-073-00	METAL CHIP	10K	5%	1/10W
R304	1-216-073-00	METAL CHIP	10K	5%	1/10W
R306	1-216-073-00	METAL CHIP	10K	5%	1/10W
R307	1-216-041-00	METAL CHIP	470	5%	1/10W
R308	1-216-097-00	METAL CHIP	100K	5%	1/10W
R309	1-216-121-00	METAL CHIP	1M	5%	1/10W
R310	1-216-105-00	METAL CHIP	220K	5%	1/10W
R311	1-216-109-00	METAL CHIP	330K	5%	1/10W
R312	1-216-049-00	METAL CHIP	1K	5%	1/10W
R313	1-216-121-00	METAL CHIP	1M	5%	1/10W
R314	1-216-073-00	METAL CHIP	10K	5%	1/10W
R315	1-216-089-00	METAL CHIP	47K	5%	1/10W
R316	1-216-077-00	METAL CHIP	15K	5%	1/10W
R317	1-216-117-00	METAL CHIP	680K	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W
R319	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R320	1-216-041-00	METAL CHIP	470	5%	1/10W
R321	1-216-013-00	METAL CHIP	33	5%	1/10W
R322	1-216-073-00	METAL CHIP	10K	5%	1/10W
R323	1-216-013-00	METAL CHIP	33	5%	1/10W
R331	1-216-049-00	METAL CHIP	1K	5%	1/10W
R332	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R333	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R601	1-216-049-00	METAL CHIP	1K	5%	1/10W
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R603	1-216-073-00	METAL CHIP	10K	5%	1/10W
R604	1-216-085-00	METAL CHIP	33K	5%	1/10W
R605	1-216-083-00	METAL CHIP	27K	5%	1/10W
R606	1-216-049-00	METAL CHIP	1K	5%	1/10W
R607	1-216-049-00	METAL CHIP	1K	5%	1/10W
R608	1-216-089-00	METAL CHIP	47K	5%	1/10W
R609	1-216-091-00	METAL CHIP	56K	5%	1/10W
R610	1-216-077-00	METAL CHIP	15K	5%	1/10W
R611	1-216-097-00	METAL CHIP	100K	5%	1/10W
R612	1-216-049-00	METAL CHIP	1K	5%	1/10W
R613	1-216-001-00	METAL CHIP	10	5%	1/10W
R614	1-216-101-00	METAL CHIP	150K	5%	1/10W
R615	1-216-097-00	METAL CHIP	100K	5%	1/10W
R616	1-216-049-00	METAL CHIP	1K	5%	1/10W
R617	1-216-001-00	METAL CHIP	10	5%	1/10W
R618	1-216-101-00	METAL CHIP	150K	5%	1/10W
R619	1-216-073-00	METAL CHIP	10K	5%	1/10W
RV301	1-230-955-11	RES, VAR, CARBON 10K/10K			
RV601	1-237-004-11	RES, ADJ, METAL GLAZE 10K			
S301	1-570-396-11	SWITCH, SLIDE			
S302	1-570-397-11	SWITCH, SLIDE			
S304	1-570-548-11	SWITCH, LEAF			
S305	1-570-395-11	SWITCH, LEAF			
SR901	1-464-769-11	RING UNIT, SLIP			
T301	1-447-864-11	TRANSFORMER, DC-DC CONVERTER			

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-528-176-11	(AEP,UK)...BATTERY, STORAGE (NC-5WM)
1-528-222-11	(UK)....BATTERY CHARGER (BC-7F)
1-528-223-11	(AEP)...BATTERY CHARGER (BC-7F)
3-330-499-01	CUSHION (UPPER)
3-340-001-01	CUSHION (LOWER)
3-340-034-01	PORCH, CARRYING
*3-340-050-01	SEAL, STOPPER
3-340-051-01	(AEP,UK)...INDIVIDUAL CARTON
3-340-063-01	(E).....INDIVIDUAL CARTON
3-340-053-01	SPACER
3-340-054-01	(AEP,UK)...CARTON, ADAPTOR
3-701-613-00	BAG, POLYETHYLENE
3-765-880-11	MANUAL, INSTRUCTION
X-3329-657-1	ATTACHMENT ASSY